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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,222	02/12/2004	Erol Girt	50103-528	3152

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MCDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

MAIL DATE	DELIVERY MODE
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03/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

10/776,222

Applicant(s)

GIRT ET AL.

Examiner

Kevin M. Bernatz

Art Unit

1773

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 07 March 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).


4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: \_\_\_\_\_.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_  
13. ☐ Other: \_\_\_\_\_.

  
Kevin M. Bernatz, PhD  
Primary Examiner  
March 21, 2007

Continuation of 11. does NOT place the application in condition for allowance because: Continuation of 11. does NOT place the application in condition for allowance because: Applicants' arguments have been considered but are not deemed persuasive. Specifically, Applicants argue that "the Examiner has not established that Ti layers and Ru or Ru alloy layers are known equivalents in a (sic) perpendicular magnetic recording medium having a non-magnetic interlayer structure", wherein the interlayer has the claimed elements (page 3 of response). The Examiner respectfully disagrees.

The Examiner notes that if a prior art reference taught a Ru or Ru alloy layer in the identically claimed interlayer structure, then the art would be anticipatory art under 35 U.S.C. 102. Since an invention may be unpatentable if it is either anticipated or obvious, the Examiner reminds Applicants that a prima facie case of obviousness does not require an explicit teaching of the identical structure as claimed, merely sufficient specificity within the prior art to render the claimed invention as obvious to one of ordinary skill in the art at the time of Applicants' invention. In the instant case, the Examiner deems there is sufficient specificity in the art. Furthermore, the Examiner notes that since the prior art does not anticipate the claimed structure with a Ru or Ru alloy layer, Applicants' have the option of providing evidence that a Ru or Ru alloy layer used within the claimed structure produces unexpected results vis a vis the disclosed Ti or Ti alloy layers. The Examiner notes that presently there is no such evidence of record (though Applicants are cautioned to view the disclosure of Nakamura et al., which appears to teach improved results of Ru versus Ti - see below).

Applicants next argue that the Examiner's position on equivalency is flawed and that "[t]he Examiner has not established that Ti and Ru and Ru alloys are known equivalents when used in the claimed structure" (page 4 of response). Applicants further note that different materials will have different impact on the recording medium structure (ibid). Applicants further argue that the lack of motivation for the substitution renders the rejection improper (page 5 of response). The Examiner respectfully disagrees.

The Examiner notes that the prior art shows that there is knowledge that both Ru and Ti (elements or alloys) will behave in a substantially identical manner when used as an hcp non-magnetic under/inter layer in a perpendicular magnetic recording medium. E.g. Lambeth et al. disclose a substrate, a fcc layer, a hcp layer composed of Ti, and a perpendicular magnetic layer, in order, while Nakamura et al. disclose a substrate, a fcc layer (seed layer, element 103), a hcp layer composed of Ru (non-magnetic underlayer, element 104), and a perpendicular magnetic layer, in order. If anything, Nakamura et al. teach that using an underlayer of Ru is preferred over using a Ti underlayer due to the better lattice matching with the hcp perpendicular magnetic layer (Table 1 and Paragraphs 0042 - 0045), though the Examiner notes that the Ti underlayer still achieves over 2000 Oe in coercivity and almost 14 dB in signal-to-noise ratio (SNR).

Regarding Applicants' argument regarding the fact that different materials have different impacts, the Examiner notes that this is the reason why it is critical that the prior art explicitly mention using the disclosed material in a substantially identical location. As noted above, not only does Nakamura et al. use a Ti alloy as a "comparative" example, but the entire structure above the soft magnetic layer of Lambeth et al. are essentially identical (i.e. fcc layer, hcp layer, hcp perpendicular magnetic layer). As such, the Examiner deems that there is sufficient guidance in the prior art that Ru is a functional equivalent to Ti, even if the final properties of the overall medium may be slightly different. Finally, as noted above, Nakamura et al. essentially teach that Ru is preferred over Ti due to the increase in coercivity and SNR.

Regarding the lack of motivation, the Examiner first notes that the necessary motivation arises from the knowledge taught in the art that both materials are suitable for use within the claimed structure and that one of ordinary skill in the art would necessarily turn to these materials when seeking to improve upon the prior art disclosures. Furthermore, as noted above, Nakamura et al. illustrates that improved lattice matching and magnetic properties can be achieved by using a Ru layer over a Ti layer.

Applicants present similar arguments with regard to the additional rejections predicated on equivalency (pages 8 - 14 of response). The Examiner notes that the Examiner's position is substantially identical as above. I.e. the Examiner agrees that the field of magnetic recording medium is complex in terms of the interactions between the various layers. However, if the prior art recognizes that the class of material, either in elemental form or in alloy form, are suitable for use in a substantially identical structural location within the overall structure of the perpendicular recording medium, then the Examiner deems that one of ordinary skill in the art would necessarily turn to these compounds when seeking to improve upon the prior art structure. Similarly, for elements or alloys used for substantially identical purposes (e.g. controlling the grain size of a bcc Cr-based alloy layer by the addition of non-Cr additives), one of ordinary skill in the art would necessarily turn to these compounds when seeking to improve upon the prior art structures. As such, the Examiner does not find Applicants' arguments regarding the lack of motivation or proof of equivalency, convincing. The Examiner has provided explicit references using the Ru or Ru-alloy materials either in substantially identical structural locations between the base reference and the teaching reference, or for substantially identical purposes (e.g. a Cr-alloy bcc non-magnetic underlayer structure within a recording medium, wherein the bcc layer is used to facilitate grain epitaxy between the magnetic layer and the layer deposited prior to the bcc layer).

Finally, the Examiner acknowledges that Chen et al. '149 and Girt only qualify as prior art under 103(c), and as such, are no longer required as evidentiary art. The Examiner notes that this does not change the rejection, since additional evidentiary art was cited supporting the Examiner's position..